

A G E N D A

Traffic Safety Advisory Committee

Council Chambers

September 17, 2013 8:15 AM to 10:00AM



(8:15 a.m.) Welcome and Introductions

Meet David Olsen and Bill Michalek, recently appointed members of TSAC.

(8:20 a.m.) Approval of Minutes

June 18, 2013

(8:25 a.m.) Review Agenda

(8:30 a.m.) Comments from the Public

— Sharrows —

**(8:45 a.m.) ODOT Highway Safety Improvement Program (HSIP)
(Update from Joel McCarroll, ODOT)**

Federal funds have been allocated to ODOT to spend on rural and urban transportation safety throughout the state. City of Bend has corridors identified by ODOT that have made the 300% funding priority list. City corridors include:

- Basic Signalized Intersection Improvements
 - Reed Market Road (3rd Street, 27th Street signals)
 - 3rd Street (Revere Avenue to Murphy Road)
 - Penn/Neff (8th Street to Medical Center)
 - Colorado/Arizona (Wall & Bond)
 - Wall/Bond (Revere to Franklin)
- Pedestrian Intersection Improvements
 - Wall/Bond (Newport to Idaho)
- Curve Signage Improvements
 - Knott Road/27th Street (Hwy 97 to Stevens Road)

Attachments:

- ODOT Basic Signal Safety Sheet
- ODOT Pedestrian Safety Sheet
- ODOT Curve Safety Sheet

(9:00 a.m.) Police/Enforcement: Update/request for attendance

Chief Sales is requesting City Council (September 18, 2013 at 5:00 PM in the Work Session portion of City Council (please attend)) support additional resources to improve safety in community. Recent crash analysis by the city documents need for increased enforcement, particularly for speed, DUII, biking rules of the road, and driver yielding to people walking and biking.

The City of Bend Traffic Safety Advisory Committee has designated a Road User Safety Task Force committed to education, engineering and enforcement. Task force members include, Deschutes County Bicycle and Pedestrian Advisory Committee, City of Bend Transportation Engineering, Commute Options, Bend Police Department, Bend Metropolitan Planning Organization, and Oregon Department of Transportation.

The next project the task force is working on is See and Be Seen as we move into autumn with less daylight during commute times.

(9:50 a.m.) Multi Modal Traffic Safety Program: Update

Awaiting RFP to be advertised.

(9:55 a.m.) Items added to Agenda

<<Galveston>>

(10:00 a.m.) Adjournment/reminder

Next TSAC Meeting:
December 17, 2013
8:15 AM to 10:00 AM

Voting Members

Agency Staff:

Nick Arnis, Transportation Manager, Chair
David Howe, (Doug Koellermeier) City of Bend Fire Department
Colin Stephens, City of Bend Community Development Department
Cory Darling (Jim Porter), City of Bend Police Department
Denice Blake, Bend La-Pine School District
Joel McCarroll (Dan Serpico), ODOT Region 4 Traffic Engineer
George Kolb, Deschutes County Road Department

Citizen Members:

Thomas Stump, Vice-Chair
Erik Huffman
Michael Toney
Jim Roberts
Bill Michalek
David Olsen (alternate)

Non –Voting Member from Council:

Doug Knight



Oregon Department of Transportation

Systemic Safety Measures

Basic Signal Upgrades

General Information

Intersection upgrades at signalized intersections can include any number of elements. They can range from adding reflective strips to the signal head back-plates to changing the left turn type. The countermeasure implemented at each intersection should be appropriate to mitigate type of crash occurring at the intersection.

FHWA, in working with ODOT, created a list of typical improvements for signalized intersections that should be considered. It was compiled into a portion of the report "Oregon Intersection Safety Implementation Plan" in June of 2012. According to the report, this safety measure "involves the installation of a basic set of signal, sign, and marking improvements that are low-cost..." Some of these low cost countermeasures are listed below.

- ✓ Addition of Pedestrian Countdown Heads
- ✓ Replacing a tradition 5-section, doghouse, signal head with a Flashing Yellow Left Turn Arrow (FYLTA).
- ✓ Adding back plates to all signal heads
- ✓ Updating to 12" LED lenses on signal heads
- ✓ Having at least one signal head per lane
- ✓ Addition of reflective strips on back plates of signal heads
- ✓ Updating to protected only left turn phasing
- ✓ Addition of near side signal heads

ODOT Specific Costs

In Oregon, some updates such as the ones listed above, can be done utilizing ODOT maintenance and electrical staff. By using ODOT forces, it minimizes the cost incurred in order to update signalized intersections. Listed are basic costs when installed using ODOT forces.

- ✓ Pedestrian Count Down Heads: \$520
- ✓ Doghouse to FYLTA: \$1500
- ✓ Back Plates for Signal Heads: \$200
- ✓ 12" LED Lenses: \$500 (just swapping existing lenses to LED lenses)
- ✓ Additional Signal Head: \$1400
- ✓ Reflective Strip on Back Plates: \$250

* There is currently no CRF for only updating to LED lenses. This reduction factor is related to updating from an 8" signal head to a 12" signal head.

By the Numbers

Overall, FHWA estimates that implementing a basic set of upgrades to an existing signal will result in an overall crash reduction, at the intersection, of 20%. Each of the listed countermeasures has a crash reduction associated with it. Below is a breakdown of each countermeasure and its estimated effect.

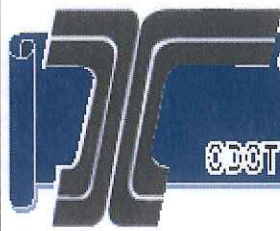
- ✓ Pedestrian Count Down Heads: 25% reduction in overall crashes.
- ✓ Doghouse to FYLTA: 25% reduction in left turn related crashes.
- ✓ Back plates on signal heads: 13% crash reduction in overall crashes, 50% reduction in angle crashes
- ✓ Signal head/lane: 46%* reduction of angle crashes
- ✓ Reflective strip on back plate: 15% reduction in overall crashes
- ✓ Protected LT Phasing: 6%-22% of all crashes, up to 99% of LT related crashes
- ✓ Nearside signal head: 7% reduction in overall crashes



Credit: OR22 and Mission St in Salem OR, taken with Google Maps. Picture showing nearside signal head and a signal head for each lane.

Helpful Resources

- ✓ FHWA "Toolbox of Countermeasures and Their Potential Effectiveness for Intersection Crashes" 2009
<http://safety.fhwa.dot.gov/Intersection/resources/fhwasa10005/docs/brief.Rpdf>
- ✓ Crash Modification Clearinghouse Website
<http://www.cmcclearinghouse.org/>
- ✓ Highway Safety Manual, 2010



Oregon Department of Transportation

ODOT

Systemic Safety Measures

Pedestrian Enhancements

General Information

Any time there are multiple pedestrian crashes at the same intersection is a major concern. To address this there are many options, some of which are limited by time, cost, and/or space. There are more pedestrian enhancements that can be implemented at high pedestrian crash locations than are listed on this sheet. Some of the possible countermeasures are listed below.

- ✓ Advanced Warning for Active Pedestrian Crossings
- ✓ High visibility Crosswalks
- ✓ Rectangular Rapid Flashing Beacons (RRFB) or Active Flashers
- ✓ Median Refuges
- ✓ Curb Bulb-outs (Extensions)
- ✓ Exclusive Pedestrian Phasing

By the Numbers

Although RRFBs and Curb Bulb-outs have not been studied in detail, it is a common understanding that they do reduce pedestrian crashes by increasing visibility of the pedestrian. Below are some crash reductions that have been found using some of these countermeasures.

- ✓ Advanced Warning Signs: 4% reduction in all crashes, and 15% reduction in pedestrian crashes.
- ✓ High Visibility Crosswalks: 37% reduction in pedestrian crashes.
- ✓ Median Refuges*: 46% reduction in pedestrian crashes.
- ✓ Exclusive Pedestrian Phasing: 34% reduction in pedestrian crashes.
- ✓ Countdown Pedestrian Heads: 25%** reduction in pedestrian crashes.

There is a great range in cost when considering many of these countermeasures. It often depends of the location at which the countermeasures would be applied as well as the surrounding property owners. Listed are some of the estimated costs of implementing some of the countermeasures.

* This is installing a raised median (marked crosswalk) at an unsignalized intersection. The countermeasure of a median refuge for pedestrians is on the CMF clearinghouse most wanted list.

**As Compared to traditional pedestrian heads.

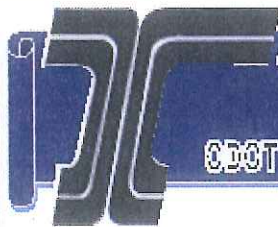
- ✓ Advanced Warning Signs: \$2,000 for signage
- ✓ High Visibility Crosswalks: \$1,000
- ✓ RRFBs or Active Flashers: \$5,000-\$15,000 dependant on power source location.
- ✓ Median Refuges: \$5,000-\$30,000 dependant on surrounding property owners and needed mitigation.
- ✓ Curb Bulb-outs (Extensions): \$5,000-\$20,000 dependant on surrounding property owners and needed mitigation.



Credit: Federal Highway Administration Website

Helpful Resources

- ✓ Highway Safety Manual Chapter 13
- ✓ Crash Modification Clearinghouse
<http://www.cmfclearinghouse.org/>
- ✓ FHWA Desktop Reference for Crash Reduction Factors
http://safety.fhwa.dot.gov/speedmgmt/rmf_mats/fhwasm09028/resources/CRF%20Desktop%20Reference.pdf
- ✓ Pedestrian Safety Guide and Countermeasure Selection System
<http://www.walkinfo.org/training/collateral/resources/PFSAFEGuide.pdf>



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